Machine translation of JP2002-104354 (Reference 3)

[Claim(s)]
[Claim 1]By using from the upstream two or more printheads provided in pasteboard along a conveying path of this label to a label by which continuation pasting was carried out one by one, A means to be a merchandise information printer which prints on a label merchandise information which is information about goods, and to measure goods, After printing of a label by means to generate said merchandise information based on measured value of these goods, and a printhead provided in the downstream is completed, A means which carries out back feed of the next label of the label to a print position of a printhead in which it was provided by the upstream rather than the printhead concerned, A merchandise information printer on condition that both measuring and said back feed of a preparation and the following goods were completed, wherein printing of said following label is started.
[Claim 2]A merchandise information printer which will be characterized by starting said back feed if it detects that had further a means to detect that a label which printing completed exfoliated from said pasteboard in the merchandise information printer according to claim 1, and exfoliation of a label was completed.
[Claim 3]A merchandise information printer, wherein a label bearer rate at the time of carrying out back feed of the label is set up in the merchandise information printer according to claim 1 or 2 more greatly than a label bearer rate at the time of printing on a label.
[Claim 4]A merchandise information printer, wherein said two or more printheads contain two or more thermal type printheads in the merchandise information printer according to any one of claims 1 to 3.
[Claim 5]A merchandise information printer, wherein said two or more printheads contain two or more hot printing type printheads in the merchandise information printer according to any one of claims 1 to 3.
[Claim 6]A merchandise information printer, wherein said two or more printheads contain at least one thermal type printhead and at least one hot printing type printhead in the merchandise information printer according to any one of claims 1 to 3.
[Claim 7]The merchandise information printer according to claim 6 which is provided with the following and characterized by not performing printing by a thermal type printhead in a portion into which printing by a hot printing type printhead is performed among printing faces of a label.
A thermal type printhead by which said two or more printheads have been arranged at the upstream.
A hot printing type printhead arranged at the downstream.

[Claim 8]A merchandise information printer, wherein said merchandise information has a different format according to a kind or sales information of goods in the merchandise information printer according to any one of claims 1 to 7.

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the merchandise information printer which performs printing about merchandise information.

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[0002]

[Description of the Prior Art]The automatic metering package pricing device etc. which applied to pasteboard the Label Printer and such a Label Printer which print the information for every goods to each label by which continuation pasting was carried out as a merchandise information printer which performs printing about merchandise information, for example exist.

[0003]In such a merchandise information printer, the price etc. which are determined by multiplying the unit price around 100g (gram) by the measured result of the product may be contained in the contents of printing of a label. In this case, since the contents of printing of each label are determined based on the measured result of that product, the contents printed by each label will differ according to the goods which should stick that label.

[0004]Such a merchandise information printer is printing the information for every goods using one head. Specifically, monochrome printing may be carried out using the printhead of one thermal type. Two-color printing may be performed by changing cooking temperature selectively and printing it to the thermal paper which colors in two kinds of colors (for example, black and red) by the difference in temperature, using the printhead of one thermal type, etc.

[0005]The interval of the mutual between two or more labels stuck on pasteboard is small. This is based on the request on manufacture of a label. In manufacturing each label by specifically excising a part of label member stuck over the whole surface on pasteboard, making the cutting parts small from viewpoints of cost control etc. is based on a desirable thing.

[0006]

[Problem(s) to be Solved by the Invention]By the way, in the Label Printer which prints the above labels in recent years, in order to strengthen the power of expression of a label, printing using more colors is called for. In order to print more colors, it is necessary to print using two or more printheads.

[0007]However, in printing using two or more printheads provided in pasteboard along the conveying path of a label to the label by which continuation pasting was carried out, each label moves in connection with printing operation. Therefore, at the time of the print end of a predetermined label, the head position of the next label of that predetermined label has passed through the print position of the printhead which will print from now on, and, the way things stand, the following label cannot be printed normally.

[0008]In order to print continuously to the label which adjoins in order to avoid this and to respond to the request of the above multicolor printing, making the contents of printing become final and conclusive at an early stage is searched for, but. Since the contents of printing of the following label are determined based on the measured result of the following goods, when earlier than the completion time of printing of a predetermined label, difficulty follows on making the contents of printing of the following label become final and conclusive.

[0009]Or in order to avoid the above-mentioned situation, arranging two or more printheads within the interval between each label is also considered, but. Since the interval of the mutual between two or more labels stuck on pasteboard is small as mentioned above, there is a problem that it is difficult to arrange two or more printheads at the mutual small interval between this label.

[0010]Thus, in using two or more printheads, in order to respond to the request of multicolor printing, it has the problem that various difficulties exist.

[0011]Then, an object of this invention is to provide the merchandise information

printer which can print easily different information for every label generated based on the measured value of each goods to each label using two or more printheads in view of said problem.

[0012]

[Means for Solving the Problem]In order to attain the above-mentioned purpose, the invention according to claim 1, By using from the upstream two or more printheads provided in pasteboard along a conveying path of this label to a label by which continuation pasting was carried out one by one, A means to be a merchandise information printer which prints on a label merchandise information which is information about goods, and to measure goods, After printing of a label by means to generate said merchandise information based on measured value of these goods, and a printhead provided in the downstream is completed, It has a means which carries out back feed to a print position of a printhead in which the next label of the label was provided by the upstream rather than the printhead concerned, and on condition that both measuring and said back feed of the following goods were completed, printing of said following label is started.

[0013]Detection of that the invention according to claim 2 was further provided with a means to detect that a label which printing completed exfoliated from said pasteboard in the merchandise information printer according to claim 1, and exfoliation of a label completed it will start said back feed.

[0014]A label bearer rate at the time of the invention according to claim 3 carrying out back feed of the label in the merchandise information printer according to claim 1 or 2 is set up more greatly than a label bearer rate at the time of printing on a label.

[0015]In the invention according to claim 4, in the merchandise information printer according to any one of claims 1 to 3, said two or more printheads contain two or more thermal type printheads.

[0016]In the invention according to claim 5, in the merchandise information printer according to any one of claims 1 to 3, said two or more printheads contain two or more hot printing type printheads.

[0017]In the invention according to claim 6, in the merchandise information printer according to any one of claims 1 to 3, said two or more printheads contain at least one thermal type printhead and at least one hot printing type printhead.

[0018]In the merchandise information printer according to claim 6, the invention according to claim 7 said two or more printheads, It has a thermal type printhead arranged at the upstream, and a hot printing type printhead arranged at the downstream, and printing by a thermal type printhead is not performed in a portion into which printing by a hot printing type printhead is performed among printing faces of a label.

[0019]The invention according to claim 8 has the format from which said merchandise information differs according to a kind or sales information of goods in the merchandise information printer according to any one of claims 1 to 7.

[0020]

[Embodiment of the Invention]<1. entire configuration> drawing 1 is a side view showing the internal configuration of the merchandise information printer 1 concerning the embodiment of this invention, and drawing 2 is a functional block diagram showing the entire configuration of the merchandise information printer 1 concerning the embodiment of this invention. Here, an automatic metering package pricing device is explained as an example of the merchandise information printer 1.

[0021]As shown in drawing 2 etc., this merchandise information printer 1 is provided with the following.

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The metering zone 10 which measures each goods.
Two or more printheads 20 which print the information for every [the measured result by the metering zone 10 was made to reflect in] goods to each label.
The label transportation part 30 which conveys each label in the conveying path where two or more printheads 20 have been arranged.
The control section 40 which controls the printing processing of the label by two or more printheads, and the logistics of the label by a label transportation part.
Although the mechanism part containing the printhead 20 and the label transportation part 30 shall also be called print engine part (or Label Printer) PM, this print engine part PM is explained in full detail behind. The control section 40 is provided with the following.
The merchandise master which memorizes the data (a name of article, a price, etc.) of each goods for every goods.
The measured result receive section 41 which receives the data of the measured result (measured value) from the metering zone 10.
The merchandise information generation part 42 which generates the merchandise information printed on each label based on the measured result (measured value) and data of goods.
The printing processing control section 43 which controls the printing processing using the merchandise information.

[0022]The merchandise information printer 1 prints the information (merchandise information) for every goods to each label by which continuation pasting was carried out using print engine part PM on pasteboard. The metering zone 10 is included in the commodity supply part 2 (central left-hand side of drawing 2) of this merchandise information printer 1. And the goods supplied to this merchandise information printer 1 can be measured, and the merchandise information containing the price according to a measured result, etc. can be printed on the label concerned. For example, the price etc. which are determined by multiplying the unit price around 100g (gram) by the measured result of the product can be included as contents of printing of the label.
[0023]Drawing 3 is a figure showing an example of the label printed. In drawing 3, the price (2262 yen) determined by multiplying the unit price (580 yen) around 100g (gram) by the measured value (390 g) of the product is included as the display information. However, the "1980" circles after discount are attached as a final price here. In order to charm a shopper's attention, "1980" showing the merchandise price of the upper column is printed as the red character R1 with a black shadow, and the field R2 of the circumference is colored yellow.
[0024]This merchandise information printer 1 is further provided with the packaging section 50 (refer to drawing 2) which packs each goods of the non-type of packing, and the label attachment part 60 which sticks the label in which the information for every goods was printed on each goods. The control section 40 is provided with the following.
The package processing control part 45 which controls the package processing by the packaging section 50.
The label attachment processing control part 46 which controls the label attachment processing by the label attachment part 60.

[0025]Here, the packaging section 50 has a package function which packs goods, such as meat put on containers, such as a tray, using the film for various kinds of packages, for example. As shown in drawing 1, the packaging section 50 is provided with the

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following.
Transport mechanism 51.
The right-and-left insertion board 52 of a couple.
Post-insertion board 53.
The pusher 54 and the hot welding conveyor 55.
The package function of this packaging section 50 is explained concretely, referring to drawing 1.
[0026]After being moved to right-hand side in drawing 1 and laying the tray T supplied to the commodity supply part 2 on lifter LF, it is moved upwards by the lifter LF. In advance of this motion moving, the transport mechanism 51 changes the film F into a set-up state beforehand [above the tray T], and it is supplied. And the film F sticks to the upper surface of the goods laid on the tray T, or the peripheral area of the tray T as a result of the motion moving by this lifter LF. After the film F has covered the upper surface of the tray T, the right-and-left insertion board 52, the post-insertion board 53, the pusher 54, etc. are used, After inserting the neighborhood of the film F into the bottom (undersurface) side of the tray T, package processing is realizable by welding mutually each peripheral area of the film F inserted into the bottom side of the tray T by hot welding conveyor 55.
[0027]The label attachment part 60 exfoliates from pasteboard, and sticks each label which printing completed on goods (specifically the film F). As this label attachment part 60, the thing etc. of the type which adsorbs the label LB by vacuum absorption are employable, for example.
[0028]Thus, in addition to the measurement function and the list function, this automatic metering package pricing device also has a package function and a label attachment function (market-making function).
[0029]<2. print engine part PM> Below, print engine part PM containing the printhead 20 and the label transportation part 30 is explained in detail.
[0030]Drawing 4 is a side view showing the outline of this print engine part PM. As shown in drawing 4, this print engine part PM has the two printheads 21 and 22 as two or more printheads 20.
[0031]Among these, the printhead 21 is a thermal type printhead and the printhead 22 is a hot printing type printhead. Below, both the printheads 21 and 22 are also called the thermal head 21 and the hot printing head 22, respectively.
[0032]The thermal head 21 is a printhead in which a label printing face can be made to color by heating the printing face of the label for thermal recording selectively. This thermal head 21 is a printhead corresponding to the label in which 2 color coloring is possible, and can be heated to a selectively different temperature in a label printing face. It is possible to make the printing face of a label by this color in a different color (for example, black and red) according to a difference of this cooking temperature.
[0033]On the other hand, the hot printing head 22 is a printhead which heats selectively the solid ink etc. which were applied to the thermal transfer ribbon TR, and is transferred to a label printing face. For example, if a yellow ribbon is used as the thermal transfer ribbon TR, it is possible to perform yellow printing in a label printing face. Similarly, in a label printing face, each color is printable by exchanging and using the ribbon of each color, such as green, blue, and red.
[0034]Print engine part PM has the ribbon feed zone 26, the ribbon rolling-up part 27, and the ribbon roller 28 for a guide, and can supply the thermal transfer ribbon TR suitably to the hot printing head 22. When the ribbon rolling-up part 27 rotates to direction (clockwise rotation) of arrow AR1 in a figure, specifically, the thermal

transfer ribbon TR twisted around the ribbon feed zone 26 runs to direction of arrow AR2 in a figure. Thereby, the new thermal transfer ribbon TR is supplied to the hot printing head 22. And the solid ink etc. which were applied to the thermal transfer ribbon TR are transferred to the label LB by heating the thermal transfer ribbon TR selectively in directly under [of the hot printing head 22]. The used thermal transfer ribbon TR is rolled round by the ribbon rolling-up part 27.

[0035]Print engine part PM has the label transportation part 30. The label transportation part 30 has the label feed zone 31 with pasteboard, the pasteboard rolling-up part 32, the guide idler 33, the platens 34a and 34b, the label sensor 35, the member 36 for exfoliation, the roller 37 for label receptacles, and the exfoliation sensor 38 that detects that exfoliation was completed. The motor M34a, M34b, and M32 are provided in the platens 34a and 34b and the pasteboard rolling-up part 32, respectively, and right reverse both directions can be made to rotate the platens 34a and 34b and the pasteboard rolling-up part 32. It is possible for this to convey each label LB by which continuation pasting was carried out on the pasteboard PB at two direction by direction of arrow AR5 and direction of arrow AR6. Although the case where direction of conveyance of a label is changed by right-reversing suitably the platens 34a and 34b and the pasteboard rolling-up part 32 using the three motors M34a, M34b, and M32 is illustrated here, It is not limited to this but direction of conveyance of a label may be changed by using combining one or two motors, gears, clutches, etc. by right-reversing the platens 34a and 34b and the pasteboard rolling-up part 32.

[0036]The one end is fixed to the label feed zone 31 with pasteboard, the other end is fixed to the pasteboard rolling-up part 32, and it changes into the state where the omitted portion was guided by two or more guide idlers 33 the pasteboard PB (drawing 5) of long shape, with which two or more labels LB were stuck continuously. And when the platen 34a (it is also the platen 34b at the time of printing by the head 22) and the pasteboard rolling-up part 32 rotate to direction of arrow AR3, The new label currently wound around the label feed zone 31 with pasteboard runs to direction of arrow AR5, and is conveyed, and it is supplied to the thermal head 21 and the hot printing head 22. The above-mentioned thermal head 21 and the hot printing head 22 are arranged in this order from the upstream along the conveying path of a label to the downstream. The platens 34a and 34b function as a support member of the label LB in the printing processing by the thermal head 21 and the hot printing head 22, respectively.

[0037]The label which printing by the thermal head 21 and the hot printing head 22 completed begins to be removed from pasteboard by the member 36 for exfoliation. This uses the character removed from pasteboard in the peripheral area of a label without the ability of a label to respond to the rapid change of an angle, when the label stuck on pasteboard tends to change the direction of movement rapidly in the member 36 for exfoliation.

[0038]Drawing 5 is a figure showing the state where the label LB is exfoliating, [near the member 36 for exfoliation]. In this drawing 5, while simplifying and expressing the thermal head 21 and the hot printing head 22, other members are omitted suitably and shown. As shown in drawing 5, the label which is exfoliating is held after having been supported by the roller 37. As for the surface of the roller 37, it is preferred to use the material of the construction material excellent in detachability like the pasteboard PB.

[0039]However, only by this member 36 for exfoliation, a label will not be in the state where it was thoroughly removed from pasteboard, but will be in the state where the

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end of the label adhered to pasteboard with the binder on the rear face of a label. If a label runs from the state of drawing 5 further to direction of arrow AR5, as shown in the highest rung of drawing 7, specifically, this label that is exfoliating will be held, after that end was left behind on pasteboard and having been supported by the roller 37.

[0040]In here, it cannot be said that such a state of a label is in the state "it exfoliated" from pasteboard. In this specification, a label is thoroughly removed from pasteboard and suppose that the state where the point of contact of a label and pasteboard was lost is called the state "where it exfoliated." The case where it changes into the state where here, each label "exfoliated" from pasteboard using the label attachment part 60 so that it might following-** is explained.

[0041]Then, each label LB which printing completed is thoroughly exfoliated from the pasteboard PB by using the above-mentioned label attachment part 60. The label LB can be exfoliated from the pasteboard PB by specifically raising, where the label LB is adsorbed by the adsorption means of the label attachment part 60. It is detectable by the exfoliation sensor 38 (refer to drawing 4) that the label LB exfoliated from the pasteboard PB. Since this exfoliation sensor 38 can judge whether a label exists in the position P1 (drawing 4), By detecting that the label LB which existed in the position P1 in the state where exfoliation is not completed stopped existing in the position P1, it is detectable that exfoliation of the label LB was completed. Then, the label attachment part 60 sticks this label LB that exfoliated from the pasteboard PB thoroughly to goods. It is not based on the label attachment part 60, but a label conveyor (not shown) is formed between the roller 37 for label receptacles, and the label attachment part 60, and it may be made to make a label exfoliate.

[0042]As mentioned above, the platens 34a and 34b and the pasteboard rolling-up part 32 can reverse the hand of cut, and can convey the label LB stuck on the pasteboard PB for reverse (direction of arrow AR6) on a conveying path (back feed). According to this back feed operation, it is possible to return the label LB which remains on the pasteboard PB even to a position. The label sensor 35 is a transmission type photosensor which has a light projection part and a light sensing portion, and can identify the portion into which the label LB exfoliated from the pasteboard PB, and the portion which has not exfoliated based on a difference of the translucent rate. By using this label sensor 35, it is possible to return the head position of an intact label even to the printing start position by the thermal head 21.

[0043]<3. operation> drawing 6 and drawing 7 are the figures showing the operation in this merchandise information printer. In detail, drawing 6 is a time chart about printing operation and conveying operation, and drawing 7 is a figure showing the physical relationship of label LB0, LB1, LB2, ..., the printheads 21 and 22 in each time t, etc. In drawing 7, both (a label and a printhead) physical relationship in each time t is shown one by one according to progress of time over each stage of the bottom from the highest rung. The printing processing to each label, etc. are explained referring to these drawing 6 and drawing 7.

[0044]The invention concerning this embodiment the next label printing processing of a predetermined label among two or more continuous labels, Both measuring about goods (directly the "following goods") and back feed which should stick the following label were completed. Although it is considered as one operation of that feature started on condition that (for example, both the measuring completion signals S2 and the back feed completion signals S6 which following-** should be an ON state), below, this operation is explained.

[0045]In here, any of measuring and back feed of the following goods may be

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completed first. Below, first, when the measuring completion signal S2 will be in an ON state after the back feed completion signal S6, the case where measuring of the following goods is completed after back feed is explained.

[0046]<3.1 In the highest rung of > drawing 7 to the printing start of label LB1, Printing by each printhead (the thermal head 21 and the hot printing head 22) to label LB0 is already completed with conveyance of direction of arrow AR5, and the state where the label LB0 is supported by the roller 37 in the state where the exfoliation from the pasteboard PB is not completed is shown.

[0047]And when this label LB0 exfoliates from the pasteboard PB, the control section 40, Back feed of label LB1 is carried out even to the position (print position of the thermal head 21) in which printing by the thermal head 21 to label LB1 is possible by reversing the motor M34a, M34b, and M32, and conveying the following label LB1 to direction of arrow AR6. In this state, the back feed completion signal S6 showing back feed having been completed will be in an one (ON) state (drawing 6, time t7). The measuring completion signal S2 is not yet an ON state at this time (time t7).

[0048]Then, if measuring by the metering zone 10 (drawing 2) is completed in the time t8 about the goods which should stick label LB1 as shown in drawing 6, the measuring completion signal S2 of the purport that the measuring was completed will be in an one (ON) state. The measuring completion signal S2 is a signal [one / a signal / when the metering signal S1 by a metering zone is stabilized and the measuring will be completed].

[0049]It answers that the metering signal S1 was stabilized and measuring was completed (or measuring completion signal S2), and the data of the measured result is transmitted to the control section 40 (drawing 2). Furthermore based on the transmitted measured result (measured value), printing image deployment to label LB1 is performed, and the printing data (merchandise information) about label LB1 is generated. Such merchandise information is generated by the merchandise information generation part 42 (drawing 2). And if generation of this merchandise information is completed, merchandise information generation completion signal S4 will be in an ON state. It is in the state (that is, both signals. ON state) where both the measuring completion signal S2 and the back feed completion signal S6 gathered at this time.

[0050]And at this time (time t10), the control section 40 conveys label LB1 to direction of arrow AR5 (drawing 7) by rotating the motor M34a, M34b, and M32 normally at the rate of predetermined, and it starts the printing processing to label LB1 using the thermal head 21.

[0051]Thus, printing of following label LB1 of label LB0 predetermined [among two or more continuous labels], The following label LB1. It starts, on condition that both the measuring completion signal S2 of the purport that measuring by the metering zone 10 about the goods (the following goods) which should be stuck was completed, and the back feed completion signal S6 of the purport that back feed was completed gather (that is, both the signals S2 and S6 should be an ON state).

[0052]When measuring of the following goods is completed ahead of back feed to <printing start [or subsequent ones] of 3.2 label LB1> Rank next, the case where the measuring completion signal S2 will be in an ON state ahead of the back feed completion signal S6 is explained.

[0053]In the time t10, after the printing processing to label LB1 by the thermal head 21 is started, specifically, the period until the printing processing about the following label LB2, etc. are started further is explained.

[0054]As mentioned above, in the time t10 the control section 40, Send out normal

rotation instructions of a prescribed speed to the motor M34a, M34b, and M32 as the transfer-control signal S5, and start conveyance to direction of arrow AR5 (drawing 7) of label LB1, and. The printing processing to label LB1 is started by sending out the printing control signal S7 over the thermal head 21. The measuring completion signal S2, merchandise information generation completion signal S4, and the back feed completion signal S6 are reset by the OFF state at this time.

[0055]Even after the printing processing by the thermal head 21 to label LB1 started at the time t10 is completed in the time t11, By sending out the printing control signal S8 over the hot printing head 22 from the control section 40, when it is continued by conveying direction of arrow AR5 label LB1 and label LB1 arrives at the print position of the hot printing head 22 (drawing 7), The printing processing by the hot printing head 22 is started to label LB1 (time t12). And in the time t15, the printing processing by the hot printing head 22 is completed after a prescribed period.

[0056]Thus, conveying to direction of arrow AR5 which met the conveying path using the label transportation part 30 with the state where label LB1 [predetermined / of two or more labels by which continuation pasting was carried out] was stuck by pasteboard at pasteboard. Printing processing about label LB1 predetermined is performed by using from the printhead (thermal head) 21 of the upstream to the printhead (hot printing head) 22 of the downstream one by one among two or more printheads 21 and 22 arranged from the upstream in this conveying path to the downstream.

[0057]And even after the printing processing by the hot printing head 22 is completed in the time t15, conveyance of label LB1 is continued over a prescribed period, and when the transfer-control signal S5 will be in an OFF state in the time t16, conveyance of label LB1 stops. This state is in the state (refer to drawing 5) which exfoliation of label LB1 has not completed. According to the advance to direction of arrow AR5 of label LB1, in the time t14, label LB1 has already reached the right above [the exfoliation sensor 38] position P1, and output signal S9 of the exfoliation sensor 38 has become an ON state from the time t14 which it is at the attainment time.

[0058]Then, in the time t17, if label LB1 exfoliates from pasteboard by the label attachment part 60, output signal S9 of the exfoliation sensor 38 will be in an OFF state. And according to "falling" of output signal S9 of this exfoliation sensor 38, the exfoliation signal S10 showing label LB1 having exfoliated will be in an ON state. In other words, this exfoliation signal S10 is a signal [one / a signal / when the exfoliation processing by the label attachment part 60 is completed to a predetermined label]. Then, label LB1 which exfoliated is stuck by the label attachment part 60 to the goods which measured for sticking the label.

[0059]Answering this exfoliation signal S10, the control section 40 sends out the transfer-control signal S5 of the purport that it rotates reversely at the rate of predetermined, to the motor M34a, M34b, and M32. Thereby, the pasteboard PB with which label LB2, LB3, and ... were stuck is conveyed by direction of arrow AR6. Thereby, back feed which returns even to the print position of the thermal head 21 to the following label LB2 is performed. In this state, the back feed completion signal S6 showing back feed having been completed is an ON state (drawing 6, time t18).

[0060]Thus, after the printing processing about label LB1 which used the printhead (hot printing head) 22 of the downstream predetermined completes the control section 40 (in detail) By performing back feed which conveys the following label LB2 of predetermined label LB1 by the label transportation part 30 to direction of arrow AR6, after label LB1 furthermore exfoliates, The following label LB2 is moved more even to the print position of the printhead (thermal head) 21 of the upstream.

[0061]On the other hand, as for the metering zone 10, the measuring completion signal S2 is the time t13 before this back feed completion time (time t18) with the ON state, and merchandise information generation completion signal S4 has also become an ON state according to this further. It answers that the metering signal S1 was stabilized and measuring was more specifically completed in the time t13 (or measuring completion signal S2), The data of the measured result is transmitted to the control section 40 (drawing 2), printing image deployment to label LB2 is further performed based on the transmitted measured result, and the printing data to label LB2 is generated. And completion of generation of this printing data is answered and merchandise information generation completion signal S4 has become an ON state.

[0062]and the thing which, as for the control section 40, the measuring completion signal S2 and merchandise information generation completion signal S4 are already an ON state -- in addition -- in the time t18 -- the back feed completion signal S6 -- although -- it answering that it was in the ON state, and, In the time t20, send out normal rotation instructions of a prescribed speed to the motor M34a, M34b, and M32 as the transfer-control signal S5, and conveyance to direction of arrow AR5 (drawing 7) of label LB1 is started, and the printing control signal S7 over the thermal head 21 is sent out. This starts the printing processing to label LB1.

[0063]Thus, the printing processing of following label LB2 of label LB1 predetermined [among two or more labels as for which the control section 40 continues], It starts, on condition that both the measuring completion signal S2 of the purport that measuring by the metering zone 10 about goods which should stick the following label LB2 was completed, and the back feed completion signal S6 of the purport that back feed was completed gather (that is, both the signals S2 and S6 should be an ON state).

[0064]Similarly, printing processing about each label is performed by repeating the processing accompanied by the above back feed about each label after on the pasteboard PB.

[0065]In here, while performing the above back feed operations according to the above-mentioned embodiment, Since printing of the following label is started on condition that both measuring and back feed of the following goods were completed, it becomes possible to print easily different merchandise information for every label generated based on the measured value for every goods to each label using two or more printheads.

[0066]The control section 40 starts the back feed about the following label LB2, when the exfoliation processing by the label attachment part 60 is completed to a predetermined label (for example, label LB1), Then, since the printing processing of the label LB2 is started on condition that both the back feed completion signal S6 and the measuring completion signal S2 gather, after the exfoliation processing about label LB1 predetermined is completed certainly, the printing processing to the following label LB2 can be started.

[0067]As for the label bearer rate in direction of arrow AR6 at the time of carrying out back feed of the label, in the above-mentioned embodiment, it is preferred to be set up more greatly than the label bearer rate in direction of arrow AR5 at the time of printing on a label. Since back feed is performed with a comparatively big label bearer rate according to this, Since the usual printing processing is performed with a comparatively small label bearer rate so that it is possible to raise the number of labels printable per unit time, it is possible to prevent the adverse effect (namely, deterioration of print quality) to print quality.

[0068]In the above, although the label about a single kind of goods was printed, the

label about the product of several different kinds may be printed. That is, the information printed by each label may have a different format according to the kind or sales information of goods. Here, the format includes the layout and the color of each arranged item at least. Drawing 8 is a format which is [about different goods or sales information] different an example of printing of the label which it has, and drawing 8 (a), The label about the bargain sale of goods "king crab" is shown, drawing 8 (b) shows the label about goods "Japanese pumpkin **", and drawing 8 (c) shows the label about usual sale of goods "king crab." Also in this case, it becomes possible to print different information for every label easily to each label using two or more printheads.

[0069]The thermal head 21 which is arranged at the upstream and prints a thermal type, It is preferred to generate printing data in the portion into which heat transfer printing by the hot printing head 22 is performed among the printing faces of each label, using the hot printing head 22 which is arranged at the downstream and prints a hot printing type, so that thermal printing by the thermal head 21 may not be performed. In the case where it performs thermal printing to the thermal layer of the label LB, and heat transfer printing using the thermal transfer ribbon TR to the printing face of the label LB, It is because print quality may deteriorate that the ink of the thermal transfer ribbon TR, etc. are hard to be transferred good if transfer by the thermal transfer ribbon TR is further performed on the heating section. On the other hand, in the portion into which heat transfer printing by the hot printing head 22 of the downstream is performed among the printing faces of each label in the above-mentioned embodiment, By generating printing data beforehand so that thermal printing by the thermal head 21 of the upstream may not be performed, aggravation of the print quality of the portion into which heat transfer printing is performed by the hot printing head 22 can be prevented.

[0070]In the <4. modification> above-mentioned embodiment, when the exfoliation processing to a predetermined label was completed, explained the case where the back feed about the following label was started, but. This invention is not limited to this but may start the back feed about the following label, without exfoliating the predetermined label. However, in order to stick certainly each label which printing completes one by one in that case to the goods which exfoliate from pasteboard and serve as the candidate for pasting, the means for taking correctly matching with the printed label and the goods for pasting will be provided. On the other hand, according to the technique of the above-mentioned embodiment, it is possible to realize exact matching simply.

[0071]In the above-mentioned embodiment, although the case where the one thermal type printhead 21 and the one hot printing type printhead 22 were included was explained as two or more printheads 20, it is not limited to this.

[0072]For example, it may have one thermal type printhead and two or more hot printing type printheads as two or more printheads 20. More specifically, it may have two or more printheads (for example, two printheads of the green printhead for thermal transfer ribbon TR, and the blue printhead for thermal transfer ribbon TR) which print the thermal transfer ribbon TR of each color. According to this, in printing the plural color by a hot printing type, it becomes possible to reduce the turnover rate of the thermal transfer ribbon TR (consider it as exchange needlessness ideally).

[0073]It may have one hot printing type printhead and two or more thermal type printheads as two or more printheads 20 conversely.

[0074]It may be made to print only using the printhead of two or more hot printing

types, without using the printhead of a thermal type. It is not necessary to use a thermal-type paper as a label, and, according to this, printing becomes possible to the label using various kinds of papers. Or it may be made to print only using the printhead of two or more thermal types, without using the printhead of a hot printing type.

[0075]Although the printed label is stuck on the goods upper part, it may be made to stick the printed label on the pars basilaris ossis occipitalis (undersurface side of the tray which specifically laid goods) of goods in the above-mentioned embodiment. It is possible to stick the label which provided print engine part PM in the tray bottom, and was specifically printed by the print engine part PM on the undersurface of a tray, after exfoliating from pasteboard etc.

[0076]In the above-mentioned embodiment, although the case where twisted various kinds of films around a tray, and package processing was performed was explained, it is not limited to this. For example, package processing which puts a film only on the upper surface of a tray may be performed by using a heat roller, and welding and/or blowing out a film in the peripheral area of a tray at an elevated temperature. It may be a merchandise information printer which does not have a package function at all. As shown in the outline perspective view of drawing 9, specifically, it may be the merchandise information printer 1B which measures the weight of the product and prints the label LB according to the measured value by laying goods on the metering zone 10B. In this case, a worker etc. will perform a package of goods.

[0077]Although the case where exfoliated automatically and the label which printing completed was stuck on each goods by the label attachment part 60 in the above-mentioned embodiment was explained, It is not limited to this, but the operator of a merchandise information printer exfoliates by hand the label which printing completed from pasteboard, and the exfoliative label may be stuck on each goods. That is, the printed label may be stuck on each goods by "******." It is possible to perform the same processing as the above in this case, even if it is. The merchandise information printer 1B of drawing 9 is an example of the device of such "******."

[0078]As specifically shown in drawing 5, in order to secure the position stability of the label for exfoliation, it is in the state (for example, state which left about several millimeters by the side of the end of a label on pasteboard) which left more portions in contact with pasteboard on pasteboard a little, and the label for exfoliation is held. By pulling the label currently held to the front, an operator exfoliates the label from pasteboard and can stick the exfoliative label on each goods.

[0079]In the above-mentioned embodiment, after the printing processing by the printhead (hot printing head 22) of the lowest style was completed, the case where back feed was carried out even to the position in which printing by the printhead (thermal head 21) of the Mogami style is possible was explained, but it is not limited to this. For example, as shown in drawing 10, when forming the four printheads 21, 22, 23, and 24 in the conveying path of the label LB, Two printheads other than printhead 21 arranged in the style of Mogami among three printheads arranged rather than the printhead 24 of the lowest style at the upstream after the printing processing by the printhead 24 arranged in the style of the lowest was completed. It may be made to carry out back feed of the following label even to the position (print position) in which printing by either of (the printheads 23 and 22 specifically arranged from the lowest style the 2nd and the 3rd) is possible. It cannot be overemphasized that back feed of the following label may be carried out even to the print position by the printhead 21 arranged in the style of Mogami. It can opt for change of such a back feed position in the above-mentioned control section 40.

[0080]After the printing processing by printheads other than printhead 24 arranged in the style of the lowest is completed, it may be made to carry out back feed of the following label even to the print position of the printhead arranged rather than the printhead at the upstream. After the printing processing by the printhead 23 arranged from the lowest style the 2nd is more specifically completed, it may be made to carry out back feed of the following label even to the print position of the printhead 22 arranged rather than the printhead at the upstream.

[0081]

[Effect of the Invention]As mentioned above, since according to claim 1 thru/or the merchandise information printer according to claim 8 printing of the following label is started on condition that both measuring and back feed of the following goods were completed, It becomes possible to print easily different merchandise information for every label generated based on the measured value for every goods to each label using two or more printheads.

[0082]Back feed will be started if it detects especially that exfoliation of a label was completed according to the merchandise information printer according to claim 2, Then, since printing of the following label is started on condition that both measuring and back feed of the following goods were completed, after the exfoliation about a predetermined label is completed certainly, printing to the following label can be started.

[0083]The label bearer rate at the time of carrying out back feed of the label according to the merchandise information printer according to claim 3, It is possible to raise the number of labels printable per unit time, preventing the adverse effect to print quality, since it is set up more greatly than the label bearer rate at the time of printing on a label.

[0084]In the portion into which printing by a hot printing type printhead is performed among the printing faces of each label according to the merchandise information printer according to claim 7, Since printing by a thermal type printhead is not performed, the smooth nature of the printing face of the label in the portion into which printing is performed by the hot printing type printhead is maintainable. Therefore, the adverse effect to print quality can be prevented.

[0085]Also in the case where it has the format from which the merchandise information printed by each label differs according to the kind or sales information of goods according to the merchandise information printer according to claim 8, It becomes possible to print different information for every label easily to each label using two or more printheads.